

App. No. 10/708,646

In the Title:

Please replace the title with the following"

"SYSTEM FOR OBJECT CLONING AND STATE SYNCHRONIZATION ACCROSS A NETWORK
NODE TREE"

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In the Specification:

Please Replace Paragraph 5 with the following:

“The current method to perform object messaging is done through such messaging standards like CORBA and DCOM where the methods (AKA remote procedures) executed on objects are done through an interface that acts on these objects, each residing at a remote location. The distributed object messaging is done through the use of a server hosting an object where any mutations of that object are executed via the interface implementation of the calling client. The data variables of the remote object are made available to the client by a symbolic reference of the remote object which usually has these data variables cached in some way. An actual true copy of the remote object is never made available to the client and the implementation of the remote object is never made directly available to the client as well.”

Please Replace Paragraph 8 with the following:

“The prior art while providing an interface for clients to access the data representation of a remote object, it does not provide a real object for the client to manipulate on the network client. If the network connection that facilitates communication between the client and the server where the remote object resides ceases, then the ability to manipulate that object ceases. Also, since the remote object is actually located on a server, then serialization of that object's complete state cannot occur as the implementation for creating that object also resides on the server. In effect if the network fails, then the client application may completely fail. Last but not least, the concept of working "offline" with an object is not possible as a network connection needs to be present for the client to interact with the remote object on the server. Considering the unreliable nature of the internet network, the quality of the systems which use the prior art are limited to the quality of their network connection which in many cases is not reliable. This invention differs from the prior art as the objects are cloned and kept in sync with the original object that was cloned and from the root node server. The functionality of the cloned object on the client is not impeded if the network connection between the remote server and the client ends because an independent object resides on the client. This allows an application to continue operation using the cloned object copy

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even after a session with the root node server has been terminated. Using this invention allows client applications to have all of the distributed object synchronization benefits of the prior art, yet distributed objects on the client may act independently of the original remote object's state if they choose, because they are true copies and not just proxy objects of the remote object."

Please Replace Paragraph 13 with the following:

"The system relies upon the distributed synchronization of data across multiple computers. This is different from simple network data propagation in that data is simply not routed or cached from peer to peer on the network, but rather the data objects are processed, validated into a synchronized state on each peer, and then those data object be are propagated to other peers if the state of the data objects is the same as the original host. What is important about this claim is that a new peer connecting to an already existing peer on the network node tree can download the synchronized state of these data objects without having to get that "bootstrap" data from the original host. This is important because it allows for flexible levels of scalability on peer to peer networking systems dealing with synchronized data objects which need to maintain a "cloned state" across all peers connected to the network. This "cloned" state needs to be maintained in real-time with the system while commercial solutions will store the data into a database and then that data may or may not be transmitted to other clients at any time in a manner similar to how email servers store a user's email until they either download the email off of the server or else explicitly delete the email via an interface to the host computer. This is done in a variety of ways but is not relevant to the system patent as the system ensures that the user interface of all clients remain in synchronicity."

Please Replace Paragraph 17 with the following:

"FIG. 3 shows how distributable object are being dispatched and cloned throughout the network node tree."

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Please Replace Paragraph 22 with the following:

"The system relies upon the distributed synchronization of data across multiple computers. This is different from simple network data propagation in that data is simply not routed or cached from peer to peer on the network, but rather the data objects are processed, validated into a synchronized state on each peer, and then those data objects are be propagated to other peers if the state of the data objects is the same as the original host. What is important about this claim is that a new peer connecting to an already existing peer on the network node tree can download the synchronized state of these data objects without having to get that "bootstrap" data from the original host. This is important because it allows for flexible levels of scalability on peer to peer networking systems dealing with synchronized data objects which need to maintain a "cloned state" across all peers connected to the network. This "cloned" state needs to be maintained in real-time with the system while commercial solutions will store the data into a database and then that data may or may not be transmitted to other clients at any time in a manner similar to how email servers store a user's email until they either download the email off of the server or else explicitly delete the email via an interface to the host computer. This is done in a variety of ways but is not relevant to the system patent as the system ensures that the user interface of all clients remain in synchronicity."

Please Replace Paragraph 26 with the following:

"Connection 2, the first step with the invention, involves creation of the root server 30. The root server 30 first binds itself to some form of I/O channel which is usually in the form of a TCP/IP Socket. This I/O channel is the connection point where clients and branch node 32s connect to the root server 30."

Please Replace Paragraph 41 and 42 with the following:

"A security controller is an implementation of a set of abstract interfaces which:-- Governs authentication to the root node 20 computer by descendant branch node 32 computers and leaf node 34 computers: and

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Provides for network communication security between computers in the network node tree 28—and
Manages the construction and maintenance of the network node tree 28 hierarchy.”

Please Replace Paragraph 58 with the following:

“Advantages

The previously described version of the present invention has many advantages. The primary advantages are that the objects the client interacts with are real objects and not just an interface to the real object on the host server. The intent is to develop a process that allows for-a the increase in quality of network connection in the transmission of information back and forth across a network. The present invention adds to the efficiency and productiveness of the process. Using this invention allows client applications to have all of the distributed object synchronization benefits of the prior art, yet distributed objects on the client may act independently of the original remote object's state if they choose, because they are true copies and not just proxy objects of the remote object. “